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EXAMINER

STAICOVICI, STEFAN

ART UNIT PAPER NUMBER

1732

DATE MAILED: 10/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/074,449

Applicant(s)

LEBRETON ET AL.

Examiner

Stefan Staicovici

Art Unit

1732

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 8/15/05.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20,24-32 and 35-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20,24-32 and 35-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 15, 2005 has been entered.

### ***Response to Amendment***

2. Applicants' amendment filed August 15, 2005 has been entered. Claims 1-20, 24-32 and 35-42 are pending in the instant application.

### ***Priority***

3. Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged. However, the provisional application upon which priority is claimed fails to provide adequate support under 35 U.S.C. 112 for claims 1-42 of this application. Specifically, the limitation of a hollow preform comprised of a "plurality of discrete reinforcing fibers intimately intermixed with a plurality of discrete thermoplastic fibers" does not appear to be supported by provisional application 60/271,289 from which the instant application claim priority. As such, the effective filing date for the instant application is considered February 13, 2002.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-20, 24-30 and 38-42 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claims 1, 27 and 38, the limitation of forming *one or more* (emphasis added) of said cylindrical sidewall portions, bottom domed portion and top domed portion from a plurality of discrete thermoplastic fibers and a plurality of discrete reinforcing fibers does not appear to have support in the original disclosure. Although the original disclosure appears to have support for the “preform” to be formed from a plurality of discrete thermoplastic fibers and a plurality of discrete reinforcing fibers, the original disclosure does not appear to have support for forming “one or more” of said cylindrical sidewall portions, bottom domed portion and top domed portion from a plurality of discrete thermoplastic fibers and a plurality of discrete reinforcing fibers. Claims 2-20, 24-26, 28-30, 39-42 are rejected as dependent claims.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 36-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 36 recites the limitation "the thermoplastic material" in line 23. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claim 35 is rejected under 35 U.S.C. 102(b) as being anticipated by Murphy *et al.* (US Patent No. 6,171,423 B1).

Murphy *et al.* ('423) teach the claimed process for manufacturing a hollow reinforced plastic vessel including, providing a rigid mold having a cylindrical sidewall and domed portions, winding a hollow preform having a cylindrical sidewall and domed portions of discrete reinforcing fibers and thermoplastic material, placing said preform against the inner surface of said mold, placing a bladder inside said hollow preform, pressurizing said bladder such as to force said hollow preform against the inner surface of said mold while heating said preform to a temperature sufficient to melt said thermoplastic material and form said hollow reinforced plastic vessel, cooling said hollow reinforced plastic vessel and removing said hollow reinforced plastic vessel from said mold (see col. 7, line 55 through col. 8, line 41). Since pressurization occurs

uniformly against the inner surface of said mold, it is submitted that distribution of said fibers is retained throughout said molding process. Further, Murphy *et al.* ('423) teach that reinforcing fiber material (12) and thermoplastic material (13) are separate strands (discrete fibers) or are commingled to form a yarn (see col. 5, lines 30-65).

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1-5, 11, 13, 15 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy *et al.* (US Patent No. 6,171,423 B1) in view of Peoples, Jr. (US Patent No. 4,568,581).

Murphy *et al.* ('423) teach the basic claimed process for manufacturing a hollow reinforced plastic vessel including, providing a rigid mold having a cylindrical sidewall and domed portions, winding a hollow preform having a cylindrical sidewall and domed portions of discrete reinforcing fibers and thermoplastic material, placing said preform against the inner surface of said mold, placing a bladder inside said hollow preform, pressurizing said bladder such as to force said hollow preform against the inner surface of said mold while heating said preform to a temperature sufficient to melt said thermoplastic material and form said hollow reinforced plastic vessel, cooling said hollow reinforced plastic vessel and removing said hollow

reinforced plastic vessel from said mold (see col. 7, line 55 through col. 8, line 41). Since pressurization occurs uniformly against the inner surface of said mold, it is submitted that distribution of said fibers is retained throughout said molding process. Further, Murphy *et al.* ('423) teach that reinforcing fiber material (12) and thermoplastic material (13) are separate strands (discrete fibers) or are commingled to form a yarn (see col. 5, lines 30-65).

Regarding claim 1, although Murphy *et al.* ('423) teach a fiber reinforcement/thermoplastic preform, Murphy *et al.* ('423) does not specifically teach a preform having discrete reinforcing fiber, separate from and intimately intermixed with discrete thermoplastic fibers. Peoples, Jr. ('581) teaches a molding process of a fiber preform having glass fibers separated from and intimately intermixed with thermoplastic fibers and molding said preform under conditions of heat and pressure (see col. 3, lines 48-58; col. 4, lines 5-9 and 30-42 and col. 5, lines 17-28). Therefore, it would have been obvious for one of ordinary skill in the art to have used the glass/thermoplastic fiber preform of Peoples, Jr. ('581) in the process of Murphy *et al.* ('423) because, Peoples, Jr. ('581) specifically teach that such a preform forms a molded article with improved characteristics such as aesthetic qualities and improved strength, hence providing for an improved product. It is noted that although Murphy *et al.* ('423) in view of Peoples, Jr. ('581) do not specifically teach cutting thermoplastic fibers, because Peoples, Jr. ('581) teach a fiber preform having glass fibers separated from and intimately intermixed with thermoplastic fibers. Submitted that said thermoplastic fibers are being cut in the process of Murphy *et al.* ('423) in view of Peoples, Jr. ('581).

In regard to claim 2, Murphy *et al.* ('423) teach pressurizing said bladder such as to force said hollow preform against the inner surface of said mold while heating said preform to a temperature sufficient to melt said thermoplastic material and form said hollow reinforced plastic vessel (see col. 7, line 55 through col. 8, line 41). Further, Murphy *et al.* ('423) teach the use of vacuum while pressurizing said preform (see col. 9, lines 10-12). Furthermore, Murphy *et al.* ('423) teach venting of said mold in order to permit trapped air to escape and hence, to avoid void formation (see col. 6, lines 33-38). It is submitted that voids in the preform are reduced due to the use of vacuum and the fiber distribution throughout said preform is maintained because pressurization occurs uniformly against the inner surface of said mold.

Specifically regarding claims 3-5, Murphy *et al.* ('423) teach an integral hollow preform having a cylindrical sidewall and domed (isotensoid) portions of reinforcing fibers and thermoplastic material. It is submitted that making separable what can be made integral, as Murphy *et al.* ('423) in view of Peoples, Jr. ('581) teach, does not appear to provide unexpected results under MPEP 2144.04(V)(C) and as such, by itself does not carry patentable weight. In re Dulberg, 289 F.2d 522, 523, 129 USPQ 348, 349 (CCPA 1961). It is noted that Murphy *et al.* ('423) teach both short reinforcing fibers and long reinforcing fibers that are wound to form said integral hollow preform (see col. 4, line 53 through col. 5, line 18).

Regarding claims 13 and 15, Murphy *et al.* ('423) teach glass fibers and polyethylene fibers to form said reinforcing fiber and thermoplastic material (see col. 5, line 61-66). Further, Peoples, Jr. ('581) teach glass fibers and polyethylene fibers (see col. 3, lines 55-65 and col. 4, line 6).



In regard to claim 11, Murphy *et al.* ('423) in view of Peoples, Jr. ('581) teach a hollow preform having a cylindrical sidewall and domed portions that is heated and compressed by an internal bladder under pressure. It is submitted that the wall thickness of the preform in the process of Murphy *et al.* ('423) in view of Peoples, Jr. ('581) is uniform in order to allow for uniform heating and compression.

Specifically regarding claims 25 and 26, Murphy *et al.* ('423) teach pressurizing said bladder such as to force said hollow preform against the inner surface of said mold while heating said preform to a temperature sufficient to melt said thermoplastic material and form said hollow reinforced plastic vessel (see col. 7, line 55 through col. 8, line 41). Further, Murphy *et al.* ('423) teach the use of vacuum while pressurizing said preform (see col. 9, lines 10-12). Furthermore, Murphy *et al.* ('423) teach venting of said mold in order to permit trapped air to escape and hence, to avoid void formation (see col. 6, lines 33-38). It is submitted that voids in the preform are reduced due to the use of vacuum and the fiber distribution throughout said preform is maintained because pressurization occurs uniformly against the inner surface of said mold.

12. Claims 6-9, 12, 27-30 and 38-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy *et al.* (US Patent No. 6,171,423 B1) in view of Peoples, Jr. (US Patent No. 4,568,581) and in further view of Wiltshire (US Patent No. 4,101,254).

Murphy *et al.* ('423) in view of Peoples, Jr. ('581) teaches the basic claimed process as described above.

Regarding claims 6-7, although Murphy *et al.* ('423) teach a wide variety of methods of making said fiber preform including using chopped fiber (see col. 4, lines 64-67), Murphy *et al.*

(‘423) in view of Peoples, Jr. (‘581) do not teach separately making the sidewall portion and the domed portions, that the sidewall portion overlaps the domed portions and, that said sidewall portion is made by rolling a fibrous mat. However, manufacturing a hollow reinforced plastic preform by separately manufacturing domed portions and a cylindrical portion by rolling a fibrous matt, is well known as evidenced by Wiltshire (‘254) which teaches that in such a process an overlap results between the sidewall portion and the domed portions (see col. 1, lines 10-14 and 31-42). Therefore, it would have been obvious for one of ordinary skill in the art to have manufactured said hollow reinforced plastic preform by separately manufacturing domed portions and a cylindrical portion by rolling a fibrous matt and, overlapping cylindrical portion and domed portions as taught by Wiltshire (‘254) in the process of Murphy *et al.* (‘423) in view of Peoples, Jr. (‘581) because Wiltshire (‘254) teaches that such a process is well known, manufacturing simplicity, reduced production costs, reduced apparatus costs, etc. and also because, Murphy *et al.* (‘423) in view of Peoples, Jr. (‘581) suggest making a preform using chopped fiber, whereas Wiltshire (‘254) teaches a chopped fiber plastic preform. Further, it is submitted that making separable what can be made integral does not appear to provide unexpected results under MPEP 2144.04(V)(C) and as such, by itself does not carry patentable weight. In re Dulberg, 289 F.2d 522, 523, 129 USPQ 348, 349 (CCPA 1961).

In regard to claims 8-9, although Murphy *et al.* (‘423) in view of Peoples, Jr. (‘581) teach glass fibers and a thermoplastic fibers, Murphy *et al.* (‘423) in view of Peoples, Jr. (‘581) do not teach that the ratio of reinforcing fiber to thermoplastic fiber is a constant value of 3:2. Wiltshire (‘254) teaches a fibrous pressure vessel having a uniform fiber to resin ratio of 3:2 (see col. 2,

lines 20-24). Therefore, it would have been obvious for one of ordinary skill in the art to have formed a fibrous pressure vessel having a uniform fiber to resin ratio of 3:2 as taught by Wiltshire ('254) using the process of Murphy *et al.* ('423) in view of Peoples, Jr. ('581) because, Wiltshire ('254) teaches that such a fiber to resin ratio provides for an improved pressure vessel, hence providing for improved product, whereas Murphy *et al.* ('423) in view of Peoples, Jr. ('581) teach a process for making a pressure vessel.

Specifically regarding claim 12, Wiltshire ('254) teaches overlapping cylindrical portion and domed portions. As such, it is submitted that the resulting wall thickness varies along said vessel obtained by the process of Murphy *et al.* ('423) in view of in view of Peoples, Jr. ('581) and in further view Wiltshire ('254) because of said overlap between said cylindrical portion and said domed portions.

Regarding claim 27 and 38, although Murphy *et al.* ('423) in view of Peoples, Jr. ('581) teach a fiber preform having glass fibers separated from and intimately intermixed with thermoplastic fibers, Murphy *et al.* ('423) in view of Peoples, Jr. ('581) do not teach collecting said glass fibers and thermoplastic fibers onto a screen to form said preform. However, the use of a vacuum screen to collect a plurality of fibers to make a non-woven matt is well known as evidenced by Wiltshire ('254) who teaches using a vacuum screen to collect a plurality of fibers (see col. 1, lines 52-68). Therefore, it would have been obvious for one of ordinary skill in the art to have provided a vacuum screen as taught by Wiltshire ('254) in the process of Murphy *et al.* ('423) in view of Peoples, Jr. ('581) because Wiltshire ('254) teaches a simple and efficient process for collecting fibers for making a non-woven mat, whereas Murphy *et al.* ('423) in view

of Peoples, Jr. ('581) teach a non-woven fiber matt, hence requiring the teaching of Wiltshire ('254) to function as described and also because of its well known status.

In regard to claims 28-30 and 39-42, Murphy *et al.* ('423) teach pressurizing said thermoplastic bladder such as to force said hollow preform against the inner surface of said mold while heating said preform to a temperature sufficient to melt said thermoplastic material and form said hollow reinforced plastic vessel (see col. 7, line 55 through col. 8, line 41). Further, Murphy *et al.* ('423) teach the use of vacuum while pressurizing said preform (see col. 9, lines 10-12). Furthermore, Murphy *et al.* ('423) teach venting of said mold in order to permit trapped air to escape and hence, to avoid void formation (see col. 6, lines 33-38). It is submitted that voids in the preform are reduced due to the use of vacuum and the fiber distribution throughout said preform is maintained because pressurization occurs uniformly against the inner surface of said mold.

13. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy *et al.* (US Patent No. 6,171,423 B1) in view of in view of Peoples, Jr. (US Patent No. 4,568,581) and in further view of Smith *et al.* (US Patent No. 4,950,439).

Murphy *et al.* ('423) in view of Peoples, Jr. ('581) teach the basic claimed process as described above.

Regarding claim 10, although Murphy *et al.* ('423) in view of Peoples, Jr. ('581) teach glass fibers and thermoplastic fibers, Murphy *et al.* ('423) in view of Peoples, Jr. ('581) do not teach that the ratio of reinforcing fiber to thermoplastic fibers varies within the hollow preform having a cylindrical sidewall and domed portions. Smith *et al.* ('439) teach a preform having

thermoplastic fibers and glass fibers intimately intermixed in a given ratio (see col. 4, lines 50-59). Further, Smith *et al.* ('439) teach that the ratio depends on the structural requirements of the resulting molded product (see col. 4, lines 59-63). Therefore, it is submitted that the ratio of glass fibers to thermoplastic fibers is a result-effective variable. In re Antonie, 59 F.2d 618, 195 USPQ 6 (CCPA 1977). Therefore, it would have been obvious to use routine experimentation to vary the ratio of glass fibers to thermoplastic fibers throughout the preform in the process of Murphy *et al.* ('423) in view of Peoples, Jr. ('581) and in further view of Smith *et al.* ('439) because, Smith *et al.* ('439) teach that the ratio depends on the structural requirements of the resulting molded product (see col. 4, lines 59-63), hence on the different structural requirements of the cylindrical sidewall and the domed portions respectively, and as such, it is submitted that the ratio of glass fibers to thermoplastic fibers is a result-effective variable.

14. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy *et al.* (US Patent No. 6,171,423 B1) in view of in view of Peoples, Jr. (US Patent No. 4,568,581) and in further view of Carter *et al.* (US 2003/0111473 A1).

Murphy *et al.* ('423) in view of Peoples, Jr. ('581) teach the basic claimed process as described above.

Regarding claim 14, although Murphy *et al.* ('423) in view of Peoples, Jr. ('581) teach discrete glass fibers, Murphy *et al.* ('423) in view of Peoples, Jr. ('581) do not teach a specific glass fiber lengths. Carter *et al.* (US 2003/0111473 A1) teach a process for making a fiber reinforced composite pressure vessel using chopped fiber having a length of 0.5-3 inches (see paragraph [0065]). Therefore, it would have been obvious for one of ordinary skill in the art to

have provided chopped fiber having a length of 0.5-3 inches as taught by Carter *et al.* (US 2003/0111473 A1) in the process of Murphy *et al.* ('423) in view of Peoples, Jr. ('581) because, Carter *et al.* (US 2003/0111473 A1) specifically teach that such a length provides for an improved pressure vessel, hence providing for an improved product, whereas Murphy *et al.* ('423) in view of Peoples, Jr. ('581) teach the use of discrete glass fiber in making a pressure vessel, hence requiring the teachings of Carter *et al.* (US 2003/0111473 A1) to function as described.

15. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy *et al.* (US Patent No. 6,171,423 B1) in view of Peoples, Jr. (US Patent No. 4,568,581) and in further view of Sandmark (US Patent no. 46,582,540 B1).

Murphy *et al.* ('423) in view of Peoples, Jr. ('581) teaches the basic claimed process as described above.

Regarding claim 16, although Murphy *et al.* ('423) in view of Peoples, Jr. ('581) teach bonding of the liner (bladder) and the fiber reinforced thermoplastic material, Murphy *et al.* ('423) in view of Peoples, Jr. ('581) do not teach applying an adhesive to the bladder (liner). Sandmark ('540) teaches a process for making a fiber reinforced pressure vessel including, applying an adhesive onto the liner in order to better improve the bonding characteristics between the liner and the fiber reinforced layer (see col. 4, lines 53-63). Therefore, it would have been obvious for one of ordinary skill in the art to have provided an adhesive layer between said bladder (liner) and said fiber reinforced layer as taught by Sandmark ('540) in the process of Murphy *et al.* ('423) in view of Peoples, Jr. ('581) because, Sandmark ('540) teaches that such

an adhesive improves the bonding characteristics between the liner and the fiber reinforced layer, hence providing for an improved product and also because, Murphy *et al.* ('423) in view of Peoples, Jr. ('581) specifically teach an embodiment in which the liner (bladder) is bonded to the fiber reinforced thermoplastic material, hence teaching a desirability to use the inflatable bladder as the internal liner of the pressure vessel.

16. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy *et al.* (US Patent No. 6,171,423 B1) in view of Peoples, Jr. (US Patent No. 4,568,581) and in further view of Fernandes (US Patent No. 6,371,323 B1).

Murphy *et al.* ('423) in view of Peoples, Jr. ('581) teaches the basic claimed process as described above.

Regarding claim 17, although Murphy *et al.* ('423) in view of Peoples, Jr. ('581) teach bonding of the liner (bladder) and the fiber reinforced thermoplastic material, Murphy *et al.* ('423) in view of Peoples, Jr. ('581) do not teach applying an adhesive to the bladder (liner) selectively such that only selected portions are bound. Fernandes ('323) teaches a process for making a double-walled tank including placing a bonding agent between an internal liner and an external layer and bonding only at selected areas to form bonded areas (see col. 2, lines 62-68 and col. 3, lines 35-42). Therefore, it would have been obvious for one of ordinary skill in the art to have selectively bonded the internal liner as taught by Fernandes ('323) in the process of Murphy *et al.* ('423) in view of Peoples, Jr. ('581) because, Fernandes ('323) teaches a simple process of forming a double-walled tank to allow for in-use monitoring of the tank, hence providing for an improved product.

17. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy *et al.* (US Patent No. 6,171,423 B1) in view of Peoples, Jr. (US Patent No. 4,568,581) and in further view of Lankheet (US Patent no. 4,267,142).

Murphy *et al.* ('423) in view of Peoples, Jr. ('581) teaches the basic claimed process as described above.

Regarding claim 18, although Murphy *et al.* ('423) in view of Peoples, Jr. ('581) teach removing said bladder after molding, Murphy *et al.* ('423) in view of Peoples, Jr. ('581) do not teach applying a mold release agent to said bladder. However, the use of a mold release agent is well known in the art as evidenced by Lankheet ('142) who teaches the use of a mold release agent to remove an elastic bladder (30) (see col. 5, lines 8-12). Therefore, it would have been obvious for one of ordinary skill in the art to have applied a mold release agent to said bladder as taught by Lankheet ('142) in the process of Murphy *et al.* ('423) in view of Peoples, Jr. ('581) because, Murphy *et al.* ('423) teach removing said bladder after molding, whereas Lankheet ('142) teaches that in order to remove an elastic bladder a mold release agent is required.

18. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy *et al.* (US Patent No. 6,171,423 B1) in view of Peoples, Jr. (US Patent No. 4,568,581) and in further view of Banchelin *et al.* (US Patent No. 5,814,268).

Murphy *et al.* ('423) in view of Peoples, Jr. ('581) teaches the basic claimed process as described above.

Regarding claim 24, although Murphy *et al.* ('423) in view of Peoples, Jr. ('581) teach a silicone bladder, Murphy *et al.* ('423) in view of Peoples, Jr. ('581) do not teach a neoprene



bladder. Banchelin *et al.* ('268) teach that silicone and neoprene bladders are equivalent alternatives for an inflatable bladder (see col. 4, lines 2-5). Therefore, it would have been obvious for one of ordinary skill in the art to have used a neoprene bladder as taught by Banchelin *et al.* ('268) as an equivalent alternative to a silicone bladder in the process of Murphy *et al.* ('423) in view of Peoples, Jr. ('581) because, Banchelin *et al.* ('268) specifically teach that silicone and neoprene bladders are equivalent alternatives for an inflatable bladder, whereas Murphy *et al.* ('423) in view of Peoples, Jr. ('581) teach a silicone bladder.

19. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy *et al.* (US Patent No. 6,171,423 B1) in view of Peoples, Jr. (US Patent No. 4,568,581) and in further view of Reyes (US Patent No. 6,010, 411).

Murphy *et al.* ('423) in view of Peoples, Jr. ('581) teaches the basic claimed process as described above.

Regarding claims 19-20, Murphy *et al.* ('423) in view of Peoples, Jr. ('581) does not teach specific molding conditions such as, molding temperature, time and pressure. It is noted that Murphy *et al.* ('423) teach that the heating process is determined such as to a temperature sufficient to melt said thermoplastic material and force said preform to conform to the inner surface of said mold (see col. 8, lines 25-30). Reyes ('411) teaches a process for molding a fiber reinforced thermoplastic hollow object using an inflatable bladder (col. 4, line 60 through col. 5, line 1). Further, Reyes ('411) teaches that the curing/solidification process is dependent on the molding time and temperature and, bladder pressure and as such, it is submitted that the molding time and temperature and, bladder pressure are result effective-variables. In re Antonie, 59 F.2d

618, 195 USPQ 6 (CCPA 1977). Therefore, it would have been obvious to use routine experimentation to determine optimum levels for the molding time and temperature and, bladder pressure in the process of Murphy *et al.* ('423) in view of Peoples, Jr. ('581) and in further view of Reyes ('411) because, Reyes ('411) teaches that the curing/solidification process is dependent on the molding time and temperature and, bladder pressure and as such, it is submitted that the molding time and temperature and, bladder pressure are result effective-variables.

20. Claims 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy *et al.* (US Patent No. 6,171,423 B1) in view of Peoples, Jr. (US Patent No. 4,568,581) and in further view of Wiltshire (US Patent No. 4,101,254), Carter *et al.* (US 2003/0111473 A1) and Reyes (US Patent No. 6,010, 411).

Murphy *et al.* ('423) in view of Peoples, Jr. ('581) teaches the basic claimed process as described above:

Regarding claim 31, although Murphy *et al.* ('423) in view of Peoples, Jr. ('581) teach glass fibers and thermoplastic fibers (see col. 5, lines 62-67), Murphy *et al.* ('423) in view of Peoples, Jr. ('581) do not teach that the ratio of reinforcing fiber to thermoplastic fibers is a constant value of 3:2. Wiltshire ('254) teaches a fibrous pressure vessel having a uniform fiber to resin ratio of 3:2 (see col. 2, lines 20-24). Therefore, it would have been obvious for one of ordinary skill in the art to have formed a fibrous pressure vessel having a uniform fiber to resin ratio of 3:2 as taught by Wiltshire ('254) using the process of Murphy *et al.* ('423) in view of Peoples, Jr. ('581) because, Wiltshire ('254) teaches that such a fiber to resin ratio provides for

an improved pressure vessel, hence providing for improved product, whereas Murphy *et al.* ('423) in view of Peoples, Jr. ('581) teach a process for making a pressure vessel.

Further regarding claim 31, Murphy *et al.* ('423) in view of Peoples, Jr. ('581) and in further view Wiltshire ('254) do not teach specific fiber lengths. Carter *et al.* (US 2003/0111473 A1) teach a process for making a fiber reinforced composite pressure vessel using chopped fiber having a length of 0.5-3 inches (see paragraph [0065]). Therefore, it would have been obvious for one of ordinary skill in the art to have provided chopped fiber having a length of 0.5-3 inches as taught by Carter *et al.* (US 2003/0111473 A1) in the process of Murphy *et al.* ('423) in view of Peoples, Jr. ('581) and in further view Wiltshire ('254) because, Carter *et al.* (US 2003/0111473 A1) specifically teach that such a length provides for an improved pressure vessel, whereas Murphy *et al.* ('423) in view of Peoples, Jr. ('581) teach the use of discrete fibers in making a pressure vessel.

Further regarding claim 31, Murphy *et al.* ('423) in view of Peoples, Jr. ('581) and in further view of Wiltshire ('254) and Carter *et al.* (US 2003/0111473 A1) do not teach specific molding conditions such as, molding temperature, time and pressure. It is noted that Murphy *et al.* ('423) teach that the heating process is determined such as to a temperature sufficient to melt said thermoplastic material and force said preform to conform to the inner surface of said mold (see col. 8, lines 25-30). Reyes ('411) teaches a process for molding a fiber reinforced thermoplastic hollow object using an inflatable bladder (col. 4, line 60 through col. 5, line 1). Further, Reyes ('411) teaches that the curing/solidification process is dependent on the molding time and temperature and, bladder pressure and as such, it is submitted that the molding time and

temperature and, bladder pressure are result effective-variables. In re Antonie, 59 F.2d 618, 195 USPQ 6 (CCPA 1977). Therefore, it would have been obvious to use routine experimentation to determine optimum levels for the molding time and temperature and, bladder pressure in the process of Murphy *et al.* ('423) in view of Peoples, Jr. ('581) and in further view of Wiltshire ('254), Carter *et al.* (US 2003/0111473 A1) and Reyes ('411), because Reyes ('411) teaches that the curing/solidification process is dependent on the molding time and temperature and, bladder pressure and as such, it is submitted that the molding time and temperature and, bladder pressure are result effective-variables.

In regard to claim 32, Murphy *et al.* ('423) teach the use of vacuum while pressurizing said preform (see col. 9, lines 10-12).

21. Claims 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy *et al.* (US Patent No. 6,171,423 B1) in view of Wiltshire (US Patent No. 4,101,254).

Murphy *et al.* ('423) teaches the basic claimed process as described above.

Regarding claims 36 and 37, Murphy *et al.* ('423) do not teach a discrete cylindrical sidewall portion and discrete domed portions such that the sidewall portion overlaps the domed portions. However, manufacturing a hollow reinforced plastic preform by separately manufacturing domed portions and a cylindrical portion is well known as evidenced by Wiltshire ('254) who teaches that it is known to form a vessel by forming a discrete cylindrical sidewall portion and discrete domed portions and assembling said discrete cylindrical sidewall portion and discrete domed portions such that said sidewall portion overlaps said domed portions (see col. 1, lines 10-14 and 31-42). Therefore, it would have been obvious for one of ordinary skill in

the art to have manufactured said hollow reinforced plastic preform by separately manufacturing domed portions and a cylindrical portion and overlapping said cylindrical portion and domed portions as taught by Wiltshire ('254) in the process of Murphy *et al.* ('423) because Wiltshire ('254) teaches that such a process is well known, manufacturing simplicity, reduced production costs, reduced apparatus costs, etc. and also because, Murphy *et al.* ('423) suggests making a preform using chopped fiber, whereas Wiltshire ('254) teaches a chopped fiber plastic preform. Further, it is submitted that making separable what can be made integral does not appear to provide unexpected results under MPEP 2144.04(V)(C) and as such, by itself does not carry patentable weight. In re Dulberg, 289 F.2d 522, 523, 129 USPQ 348, 349 (CCPA 1961).

Further regarding claim 37, it is noted that Murphy *et al.* ('423) teach that reinforcing fiber material (12) and thermoplastic material (13) are separate strands (discrete fibers) or are commingled to form a yarn (see col. 5, lines 30-65).

### ***Response to Arguments***

22. Applicant's arguments filed August 15, 2005 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stefan Staicovici, Ph.D. whose telephone number is (571) 272-1208. The examiner can normally be reached on Monday-Friday 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael P. Colaianni, can be reached on (571) 272-1196. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Stefan Staicovici, PhD



Primary Examiner

9/30/05

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September 30, 2005